

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on December 4, 2002, and the references cited therewith.

Claims 1, 9, and 55 are amended, no claims are canceled, and claims 56-67 are added; as a result, claims 1-13, and 55-67 are now pending in this application.

§103 Rejection of the Claims

Claims 1-3 and 5-7 were rejected under 35 USC § 103(a) as being unpatentable over the applicant's admitted prior art of this application (AAPA) in view of Yano et al. (US '080).

The rejection states that:

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to form the oxide layer as by taught by Yano et al. in the method of AAPA because in doing so an oxide layer having improved crystallinity and surface properties is obtained. See col. 7, lines. 18-24. AAPA and Yano et al. fail to teach that the metal alloy of cobalt and titanium is used to form the metal oxide as recited in present claim 2. However, the use of metal alloy of cobalt and titanium in forming metal oxide is well-known to one of ordinary skill in the art of making semiconductor devices.

Yano appears to show an epitaxially grown crystalline buffer film of YSZ (yttria-stabilized zirconia). See column 7, lines 18-30. Yano further appears to teach that YSZ possesses a high dielectric constant of about 20 (Col 2, lines 25-27). However, Yano does not show evaporation depositing a metal alloy layer on the body region **wherein at least a portion of the alloy layer is amorphous**. Yano, in fact, teaches away from amorphous regions.

In contrast, Applicant's claim 1 as amended includes evaporation depositing a metal alloy layer on the body region wherein at least a portion of the alloy layer is amorphous. Applicant states in the present application on page 8, lines 6-11, "In one embodiment, the deposited material layer 320 is substantially amorphous. A lower presence of grain boundaries in the substantially amorphous material layer 320 reduces the leakage current through the final gate oxide. Although the amorphous form is preferred, the materials chosen for oxidation, such as cobalt and titanium are also acceptable in crystalline form."

Further, regarding claim 2, Applicant respectfully traverses the assertion that the use of a metal alloy of cobalt and titanium in forming a metal oxide is obvious to combine with the

teachings of Yano. Yano appears to teach a specific material choice to produce a desired lattice constant of an epitaxial film. Applicant further submits that Applicant's use of cobalt and titanium to produce a CoTiO₃ yields a dielectric constant of about 40 (page 8, line 5-6). This is an improvement of 100% over the method suggested by Yano.

Because the cited references, either alone or in combination, do not show every element of Applicant's independent claims, a 35 USC § 103(a) rejection is not supported by the references. Reconsideration and withdrawal of the rejection is respectfully requested with respect to Applicant's independent claim 1. Additionally, reconsideration and withdrawal of the rejection is respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

Claims 8 was rejected under 35 USC § 103(a) as being unpatentable over the applicant's admitted prior art of this application (AAPA) in view of Yano et al. (US '080) and Japan 2001332546A (JP '546A) as applied to claims 1-3 and 5-7 above, and further in view of the following remarks. AAPA and Yano et al. do not appear to teach the using a single metal target in electron beam evaporation process. However, the use of single metal or multiple metal target is an obvious design choice.

Applicant respectfully submits that the reference JP '546A fails to cure the deficiencies of Yano as argued above. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 9-11 and 13 were rejected under 35 USC § 103(a) as being unpatentable over the applicant's admitted prior art of this application (AAPA) in view of Yano et al. (US '080).

As stated in arguments presented above, Applicant respectfully submits that Yano does not show evaporation depositing a metal alloy layer on the body region wherein at least a portion of the alloy layer is amorphous. Yano, in fact, teaches away from amorphous regions. In contrast, Applicant's claim 9 as amended includes evaporation depositing a metal alloy layer on the body region wherein at least a portion of the alloy layer is amorphous.

Because the cited references, either alone or in combination, do not show every element of Applicant's independent claims, a 35 USC § 103(a) rejection is not supported by the references. Reconsideration and withdrawal of the rejection is respectfully requested with

respect to Applicant's independent claim 9. Additionally, reconsideration and withdrawal of the rejection is respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

Claim 12 was rejected under 35 USC § 103(a) as being unpatentable over the applicant's admitted prior art of this application (AAPA) in view of Yano et al. (US '080) and Japan 20011332546A (JP '546A) as applied to claims 9-11 and 13 above, and further in view of the following remarks. AAPA and Yano et al. do not appear to teach the using a single metal target in electron beam evaporation process. However, the use of the single metal or multiple metal target is an obvious design choice.

Applicant respectfully submits that the reference JP '546A fails to cure the deficiencies of Yano as argued above. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 55 was rejected under 35 USC § 103(a) as being unpatentable over the applicant's admitted prior art of this application (AAPA) in view of Yano et al. (US '080).

Applicant respectfully submits that Yano does not show electron beam evaporation depositing a metal alloy layer on the body region wherein at least a portion of the alloy layer is amorphous. Yano, in fact, teaches away from amorphous regions. In contrast, Applicant's claim 55 as amended includes electron beam evaporation depositing a metal alloy layer on the body region wherein at least a portion of the alloy layer is amorphous.

Because the cited references, either alone or in combination, do not show every element of Applicant's independent claims, a 35 USC § 103(a) rejection is not supported by the references. Reconsideration and withdrawal of the rejection is respectfully requested with respect to Applicant's independent claim 55. Additionally, reconsideration and withdrawal of the rejection is respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6944) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

KIE Y. AHN ET AL.

By their Representatives,

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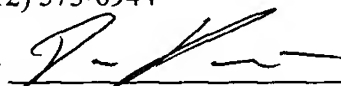
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3-4-03

By



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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 4th day of March 2003.

Name

Amy Moriarty

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